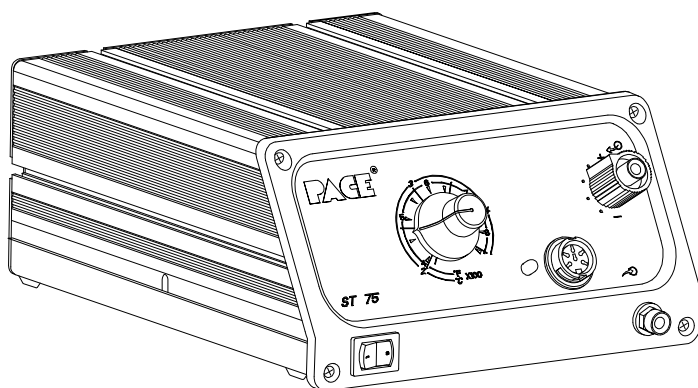


# PAGE<sup>®</sup>

**ST75 Systems**



***Operation & Maintenance Manual***

# ***TABLE OF CONTENTS***

---

<b><i>TITLE</i></b>	<b><i>PAGE</i></b>
General Information .....	2
Introduction .....	2
Specifications .....	3
Parts Identification .....	4
Safety .....	5
Safety Guidelines, English Language .....	5
Safety Guidelines, French Language .....	6
Safety Guidelines, German Language .....	7
Safety Guidelines, Italian Language .....	8
Safety Guidelines, Portuguese Language .....	9
Safety Guidelines, Spanish Language .....	10
Safety Guidelines, Swedish Language .....	11
Set-Up .....	12
Tip & Tool Stand .....	12
Handpiece Vacuum/Pressure .....	13
Handpiece Connnection .....	14
System Power Up .....	14
Heater Burn In .....	15
Operation .....	15
Temperature Selection .....	15
LED Operation .....	16
Repair .....	17
Repair Procedure .....	17
Calibration .....	18
Corrective Maintenance .....	19
Power Source .....	19
Handpieces .....	20
Disassembly/Assembly .....	21
Assembly Detail .....	23
Wiring Diagram .....	24
Schematic .....	25

# ***TABLE OF CONTENTS***

---

Packing List/Spare Parts .....	28
Packing List .....	28
Spare Parts .....	29
Limited Warranty Registration .....	30

<i><b>TABLE</b></i>	<i><b>PAGE</b></i>
Table 1 Power Source .....	19
Table 2 Heater Assembly Checkout Procedures .....	20
Table 3 Packing List .....	28
Table 4 Spare Parts .....	29

---

PACE Incorporated retains the right to make changes to specifications contained herein at any time, without notice.

Contact your local authorized PACE Distributor or PACE Incorporated to obtain the latest specifications.

The following are registered trademarks and/or servicemarks of PACE Incorporated, Laurel Maryland U.S.A. and may only be used to identify genuine PACE products or services:

Arm-Evac, Mini-Wave, PACE, SensaTemp, Snap-Vac, Sodrtek, Sodr-X-Tractor, ThermoFlo, ThermoJet, ThermoTweez, Toolnet, Visifilter.

For any questions regarding this Operation & Maintenance Manual, contact your local authorized PACE distributor or contact PACE directly at the appropriate address listed below.

**PACE USA**                      9893 Brewers Court, Laurel, Maryland 20723-1990  
Tel. (888)535-7223 (toll-free), (301)490-9860  
FAX (301)483- 7030  
[www.paceworldwide.com](http://www.paceworldwide.com)

**PACE EUROPE**                Sherbourne House   Sherbourne Drive Tilbrook  
Milton Keynes United Kingdom MK7 8HX  
Tel. (44)01908 277 666    FAX (44)01908 277 777

---

**MANUAL NUMBER 5050-0456**  
**REV. C**

# ***General Information***

---

## ***Introduction***

Thank you for purchasing the PACE model ST 75 Soldering/Desoldering System. This manual will provide you with the information necessary to properly set up, operate and maintain the ST 75 system.

The ST 75 systems are available in either the 115 VAC, or 230 VAC version which incorporates a highly responsive SensaTemp (closed loop) control system providing up to 80 Watts of total power to a single output channel. The 230 VAC version system bears the CE Conformity Marking which assures the user that it conforms to all the requirements of council directive EMC 89/336/EEC. The systems package the power source with a selection of accessories and functional aids.

The PACE Sodr-X-Tractor handpiece provides thermally enhanced thru-hole desoldering, safe removal of TQFP (Thin Quad FlatPack) and TSOP (Thin Small Outline Package) surface mount components and continuous removal of old solder from surface mount lands.

PACE SensaTemp handpieces may be used with the ST 75 system to perform a wide variety of advanced surface mount & thru-hole component removal/replacement operations.

### Specifications

System power sources are available in either the 115 VAC or 230 VAC version.

The 230 volt system bears the Conformity Marking which assures the user that it conforms to all the requirements of (EU) directive EMC 89/336/EEC & 73/23/EEC.

#### **System Power Source Power Requirements:**

ST 75 - Operates on 97-127 VAC, 50/60Hz  
120 Watts maximum at 115 VAC, 60Hz

ST 75E - Operates on 197-253 VAC 50/60Hz  
120 Watts maximum at 230 VAC, 50Hz

#### **Temperature Specifications:**

Tip Temperature Range: 204°C to 454°C (400°F to 850°F) nominal.

Temperature Stability:  $\pm 1.1^{\circ}\text{C}$  ( $\pm 2^{\circ}\text{F}$ ) at idle from set tip temp.

**NOTE** - Actual minimum and maximum Operating Tip Temperatures may vary depending on Handpiece, Tip selection and application.

#### **Vacuum And Air:**

(Measurements at front panel Vacuum and Controllable Pressure Ports.)

Vacuum Rise Time:	200 ms average as measured by PACE PPM 100 Process Monitor.
Vacuum:	51 cm Hg. (20 in. Hg.) (nominal)
Pressure:	1.44 Bar (21 P.S.I.) (nominal at <b>MAX</b> setting)
Air Flow:	6 SLPM (0.22 SCFM) maximum

#### **EOS/ESD Specifications:**

The specifications shown below apply except on "Soft Ground Systems" which have a 1 meg ohm current limiting resistance and a label placed on the power source front panel referring to EN 100015-1.

Tip-To-Ground Resistance:	Less than 2 ohms.
AC Leakage:	Less than 2 millivolts RMS from 50Hz to 10MHz.
Transient Level:	Less than 500mV peak, out to 100MHz.

## General Information

---

### Parts Identification

1 - Power Receptacle

2 - LED

3 - Variable Temperature Control

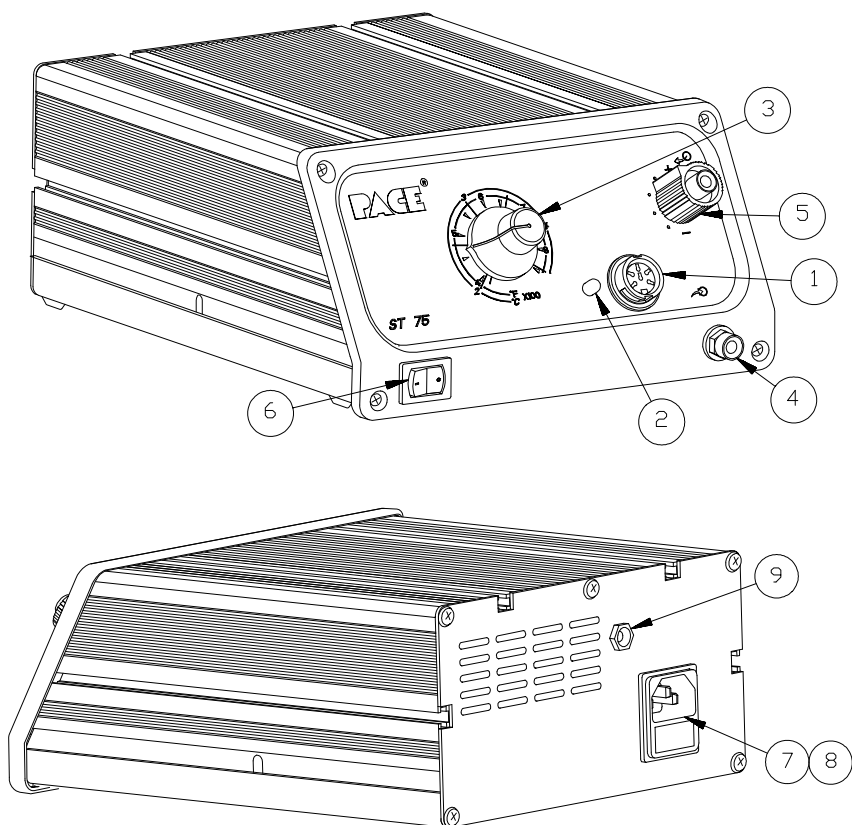
4 - Vacuum Port

5 - Controllable Pressure Port

6 - Power Switch

7/8 - AC Power Receptacle/Fuse  
Holder

9 - Earth Ground Receptacle  
(230 VAC Systems only)





### *Safety Guidelines - English Language*

The following are safety precautions which personnel must understand and follow when using or servicing PACE products.

1. **POTENTIAL SHOCK HAZARD** - Repair procedures on PACE products should be performed by Qualified Service Personnel only. Line voltage parts may be exposed when the equipment is disassembled. Service personnel must avoid contact with these parts when troubleshooting the product.
2. To prevent personnel injury, adhere to safety guidelines in accordance with OSHA and other applicable safety standards.
3. SensaTemp handpiece heaters and installed tips are hot when the handpiece is powered on. **DO NOT** touch either the heater or the tip. Severe burns may result.
4. PACE Tip & Tool Stands and handpiece cubbies are designed specifically for use with the associated handpiece and houses it in a manner which protects the user from accidental burns. Always store the handpiece in its holder. Be sure to place the handpiece in its holder after use and allow to cool before storing.
5. Always use PACE systems in a well ventilated area. A fume extraction system such as those available from PACE are highly recommended to help protect personnel from solder flux fumes.
6. Exercise proper precautions when using chemicals (e.g., solder paste). Refer to the Material Safety Data Sheet (MSDS) supplied with each chemical and adhere to all safety precautions recommended by the manufacturer.

## Directives de Sécurité, Française Langue

Les précautions suivantes, sont celles que le personnel doit comprendre et suivre lorsqu'il utilise, effectue la maintenance ou se sert d'un produit PACE.

1. **Danger potentiel de choc électrique** - Les procédures de réparation sur les produits PACE doivent être effectuées seulement par du personnel qualifié. Des parties de l'équipement désassemblées peuvent être sous tension. Le personnel de maintenance doit éviter tout contact avec ces parties en réparant le produit.
2. Pour prévenir tout préjudice, le personnel adhère au guide de sécurité en accord avec OSHA (équivalent à des normes françaises de sécurité) et d'autres standards de sécurité applicable.
3. La mise sous tension des outils SensaTemp comporte des éléments chauffants (buse). Ces derniers, gardent la chaleur même après la mise hors tension pendant un certain temps. **Ne pas** toucher les parties chaudes aux extrémités des outils. Des brûlures sévères peuvent en résulter.
4. Les outils PACE et leurs pannes ainsi que le support sont dessinés de manière spécifique afin de protéger l'utilisateur/opérateur de brûlures accidentelles. Reposer toujours les outils après chaque utilisation dans leurs étuis/supports afin de permettre leur refroidissement.
5. Utiliser toujours les stations Pace dans un lieu bien ventilé. Des extracteurs de fumée Pace sont hautement recommandés pour protéger votre personnel des vapeurs de soudure/flux.
6. Prenez les mesures nécessaires quand vous utilisez des produits (ex: solder paste) chimiques. Reportez-vous au document (fiche technique/sécurité) du fabricant fourni avec chaque produit. Respectez toutes les procédures de sécurité recommandées par le constructeur.

## Sicherheit Korrekturlinien, Deutsche Sprache

Die nachfolgenden Sicherheitsvorschriften sollten vom Bedien- und Servicepersonal verstanden und befolgt werden.

1. **Entladung spannungsfuehrender Teile** - Reparaturen an PACE Produkten sollten nur von qualifizierten Personal durchgefuehrt werden. Spannungsfuehrende Teile koennen sich bei gezogenen Netzstecker entladen. Servicepersonal muss den Kontakt dieser Teile vermeiden.
2. Um moegliche Gefahren fuer Personen auszuschliessen, muessen alle Sicherheitsvorschriften in Uebereinstimmung mit OSHA und anderen anwendbaren Sicherheitsstandards eingehalten werden.
3. Angeschlossene SensaTemp Heizelemente von Handwerkzeugen und installierte Loetspitzen sind heiss wenn das System eingeschaltet ist oder erst vor kurzer Zeit ausgeschaltet wurde. Heizelement und Loetspitze nicht beruehren. Verbrennungsgefahr.
4. PACE Tip & Tool und andere Handwerkzeugablagen sind so konstruiert, dass ein versehentliches Beruehren des dazugehoerendes Handwerkzeuges vermieden wird. Bewahren Sie das Handwerkzeug nach Gebrauch stets in der Ablage auf. Bevor das Handwerkzeug an einem anderen Ort gelagert werden muss, lassen Sie es in der Werkzeugablage vollstaendig abkuehlen.
5. Benutze PACE Systeme nur in gut beluefteten Raeumen. Ein Loetrauchabsaugsystem, wie es z.B. von PACE erhaeltlich ist, hilft Bedienpersonen von den Gefahren von Loetrauch zu schuetzen.
6. Wenn Chemikalien (z.B.: Lotpaste) verwendet werden, muessen alle die in den Sicherheitsdatenblaettern des Herstellers ausgewiesenen Sicherheitsvorschriften eingehalten werden.

### *Misure di Sicurezza, Italiana Lingua*

Le seguenti istruzioni sono misure di sicurezza che il personale deve comprendere e seguire quando utilizza o ripara I prodotti PACE.

1. **EVENTUALIRISCHIDISHOCKELETTRICO**-Si consiglia di far eseguire le operazioni di riparazione dei prodotti PACE, da un servizio di personale qualificato. Quando la stazione non é assemblata le parti sottoposte alla tensione di linea potrebbero essere scoperte. Il personale deve evitare il contatto con queste parti durante manutenzione del prodotto.
2. Per evitare eventuali pericoli al personale, attenersi alle norme di sicurezza previste dalla guida, in conformità all'OSHA e agli altri Standard di Sicurezza applicabili.
3. Le resistenze PACE Sensatemp e le punte installate sono calde quando la stazione é accesa e per un periodo successivo allo spegnimento. Non toccare la resistenza e la punta. Può comportare gravi ustioni.
4. I supporti PACE sono specificamente costruiti insieme alla corrispondente impugnatura e progettati per un uso che protegge gli utenti da ustioni accidentali. Mettere sempre l'impugnatura nel proprio supporto dopo l'utilizzo e lasciarla raffreddare prima di riporla.
5. Utilizzare sempre I stazioni PACE in una zona ben aerata per proteggere il personale dai fumi. É fortemente raccomandato un sistema di aspirazione (dei fumi) come quello disposta dalla PACE.
6. Usare precauzioni quando si utilizzano sostanze chimiche (es. Pasta di stagno). Fare riferimento al Material Safety Data Sheet (MSDS) fornita con ogni sostanza chimica e seguire tutte le misure di sicurezza raccomandate dal fabbricante.

### ***Guidelines de Segurança, Portuguese Lingua***

---

Segeum-se precauções de segurança que os operadores devem compreender e seguir ao utilizar ou reparar produtos PACE.

1. **Perigo de choque eléctrico** - Os procedimentos de reparação em produtos PACE, devem ser apenas efectuados por pessoal qualificado. Linhas de alimentação podem ficar expostas ao desmontar o equipamento. Pessoal de reparação deve evitar o contacto com essas partes ao reparar o produto.
2. Para evitar danos pessoais, siga as normas de segurança OSHA ou outras normas aplicáveis.
3. Resistencias de aquecimento dos ferros e as pontas instaladas estão quentes quando o ferro está alimentado, e mesmo durante algum tempo após ser desligado. **NUNCA TOCAR** nem na resistencia de aquecimento nem na ponta. Pode resultar em queimaduras severas.
4. Os suportes para pontas e ferros da PACE, foram concebidos para uso específico, e para proteger o operador de queimaduras acidentais. Coloque sempre os ferros nos respectivos suportes. Tenha a certeza de colocar sempre o ferro no respectivo suporte após cada utilização e deixe-o arrefecer antes de o guardar.
5. Utilize sempre os sistemas da PACE em locais bem ventilados. Um Sistema de extracção de fumos, como os Sistemas disponiveis na PACE, são altamente recomendados para a protecção dos utilizadores contra os fumos produzidos pela solda e fluxo.
6. Tenha precauções apropriadas ao utilizar produtos quimicos (ex. pasta de soldar). Lêr sempre atentamente os normas de segurança fornecidas com cada produto químico e siga sempre todas as precauções de segurança recomendadas pelo fabricante.

## Guías de Consulta de Seguridad, Español Lenguaje

Lo siguiente es precauciones de seguridad que el personal debe entender y debe seguir al usar o reparar productos de PACE.

1. **RIESGO de SHOCK POTENCIAL** - Los procedimientos de la Reparación en productos de PACE sólo deben ser realizados por Personal de Servicio Calificado. Pueden exponerse partes de voltaje de línea cuando el equipo se desmonta. El personal de servicio debe evitar contacto con estas partes al arreglar el producto.
2. Para prevenir lesión del personal, adhiera a las reglas de seguridad de acuerdo con OSHA y otras normas de seguridad aplicables.
3. Las herramientas SensaTemp tienen sus calentadores y las puntas instaladas calientes cuando la herramienta esta encendida y por un periodo de tiempo después de apagar el equipo. **No toque el calentador o la punta.** Las quemaduras severas pueden resultar.
4. El Soporte de punta y Herramienta PACE se diseñan específicamente para el uso con las herramientas asociadas y las almacena de una manera que protege al usuario de las quemaduras accidentales. Siempre guarde la herramienta en su soporte. Esté seguro de poner la herramienta en su soporte después del uso y permita que la herramienta enfríe antes de guardar.
5. Siempre use sistemas de PACE en una área bien ventilada. Un sistema de extracción de humo como esos disponibles de PACE se recomiendan para ayudar a proteger al personal contra los humos de flujo de soldadura.
6. Ejercicie las precauciones apropiadas al usar químicos (ej., pasta de la soldadura). Refiérase a la Hoja de Datos de Seguridad de Material (MSDS) proporcionado con cada químico y adhiere a todas las precauciones de seguridad recomendadas por el fabricante.

### Säkerhetsföreskrifter, Svenska

Följande säkerhetsföreskrifter måste förstås och följas av personal som använder eller utför service på PACE produkter.

1. **RISK FÖR STRÖMSTÖT** - Service / Reparation av PACE produkter får endast utföras av aktoriserad service personal. Strömförande delar kan komma åt när produkten är isärplockad. Iakttag aksamhet när felsökning görs för att undvika strömstötar.
2. För att undvika personskada rekommenderas att OSHA eller andra liknande arbetssäkerhets standarder följs.
3. SensaTemp verktygselement och installerade spetsar är heta när strömmen är påslagen och en tid efter att strömmen slagits av. **RÖR EJ** element eller spets. Risk för brännskador!
4. PACE Spets och Verktygshållare är speciellt utformade för att passa PACE respektive verktyg så att risken för brännskador kan undvikas. När verktyget ej används bör det alltid förvaras i sin hållare.
5. Tillse att ventilationen är god där PACE System används. Ett lödröksutsug system som t.ex. PACE tillhandahåller rekommenderas för att skydda användaren för giftig lödrök.
6. Tillse att gällande säkerhetsföreskrifter följs vid användning av kemikalier, t.ex. lodpasta. Se säkerhetsdatablad som medföljer kemikalierna och följ de rekommenderade säkerhetsföreskrifterna från respektive tillverkare.

## Set-Up

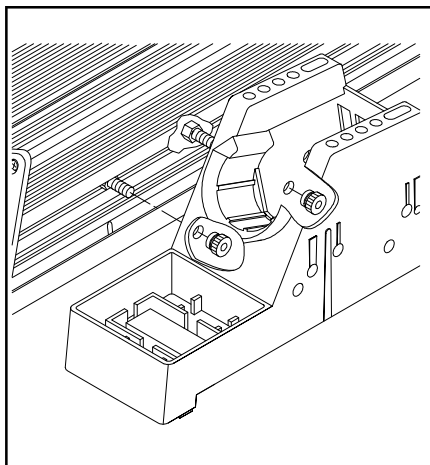
---

### ***Tip & Tool Stand***

---

If you have purchased a system with a handpiece, set up the Tip & Tool Stand in the following manner. Set up any other SensaTemp handpiece, use the instructions enclosed with the handpiece and associated Tip & Tool Stand.

1. Attach the stand to either side of the power source, in the following manner.
  - a) Insert the 2 large hex head Mounting Screws (head first) into the lower "T" slot on the side of the power source case as shown.
  - b) Place the Tip & Tool Stand in position beside the power source. Insert ends of the 2 Mounting Screws into the 2 Tip & Tool Stand mounting holes shown.
  - c) Install a Thumb Nut onto the end of each Mounting Screw. Tighten Thumb Nuts to secure the stand in position.
2. Place handpiece into Tip & Tool Stand.





### ***Handpiece Vacuum/Pressure***

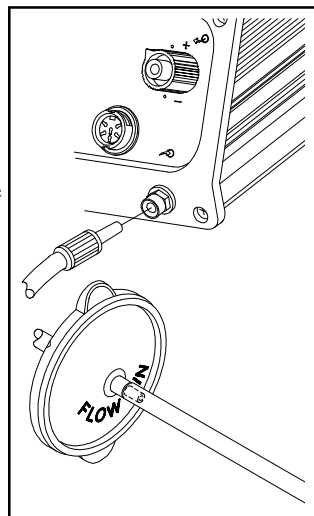
To set up your Sodr-X-Tractor air hose connection, perform the following steps:

1. Air Hose To Handpiece Connection

- a) Attach one end of a 137cm (54 inch) length of air hose to the metal tube in the back of the handpiece.
- b) If you have a PACE system incorporating only one handpiece, attach the air hose to the power cable using the supplied Hose Clamps. Space them evenly along the length of the power cable starting at a point 6 inches from the ends of the handpiece.
- c) If you have a PACE system incorporating 2 or more air handpieces, you may wish to leave the air hose assembly unattached to allow a quick change to any air handpiece being used.

2. Prepare a VisiFilter in the following manner:

- a) Connect a 1 inch (2.5cm) length of clear pvc air hose to the FLOW OUT side of the VisiFilter; push and turn the hose onto the VisiFilter nipple to seat.
- b) Insert the ribbed end of a male quick connect hose mount fitting (P/N 1259-0087) into the free end of the 1 inch (2.5cm) length of air hose connected to the FLOW OUT side of the VisiFilter.
- c) Connect the free end of the 137cm (54 inch) length of air hose to the FLOW IN side of the VisiFilter.
- d) Insert the end of the quick connect hose mount fitting (on VisiFilter FLOW OUT side) into the power source Vacuum Port.



3. When using air pressure, and/or utilizing multiple

air handpieces, PACE recommends the use of the following set up procedure which utilizes additional quick connect hose mount fittings. An assortment of quick connect air fittings are supplied with each additional air handpiece.

- a) Disconnect the 137cm (54 inch) length of air hose from the FLOW IN side of the VisiFilter assembly. Insert the ribbed end of a male quick connect hose mount fitting (P/N 1259-0087) into the free end of this air hose.

## Set-Up

---

- b) Connect the free end of a 1 inch (2.5cm) length of air hose with an installed female quick connect hose mount fitting (P/N 1259-0086) to the FLOW IN side of the VisiFilter Assembly.
  - c) The 137cm (54 inch) length of air hose can now be easily moved between the VisiFilter Assembly and the Controllable Pressure Port. The VisiFilter assembly remains connected to the Vacuum Port.
4. Additional fittings may also be added to the hose connection at the rear of each air handpiece to ease changing of handpieces.

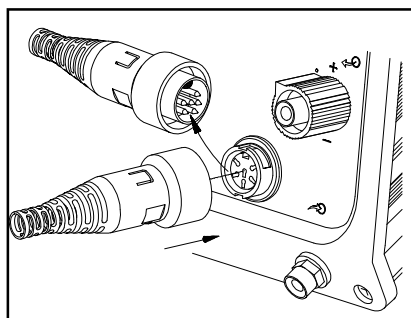
### NOTE

When removing any air hose, turn and pull. Do not attempt to pull hose directly off. Damage to or breakage of fitting or VisiFilter may occur. Use your Sodr-X-Tractor with a clean VisiFilter element. Otherwise a deterioration in performance or damage to the unit may occur.

## Handpiece Connection

Connect the handpiece connector plug into the Power Receptacle in the following manner.

1. Align guide on connector with slot on power receptacle.
2. Insert connector into power receptacle.
3. Turn the connector housing clockwise to lock in place.



## System Power Up

1. Insert the female end of the power cord into the AC Power Receptacle at the rear panel of the power source.
2. Plug the prong end (male end) of the power cord into a 3 wire grounded AC supply receptacle. The system is now ready for operation.

### CAUTION

To insure operator safety, the AC supply receptacle must be checked for proper grounding before initial operation.

3. Read this manual and all other included manuals thoroughly before operating the system.

### ***Heater Burn In***

To insure optimum performance and long life, new TJ-70 handpieces must undergo a burn in procedure. A Red tag is attached to each handpiece and with replacement heater assemblies which describes the proper procedure. Perform the procedure listed on the tag when setting up a new ST 75 system or when replacing a TJ-70 heater assembly.

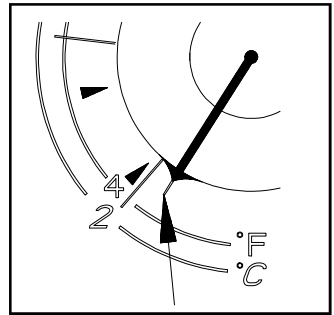
#### **NOTE**

Ensure that the system is placed in a well-ventilated area. Smoke will be emitted from the heater assembly during the burn in cycle.

### ***Temperature Selection***

#### **Variable Temperature Control**

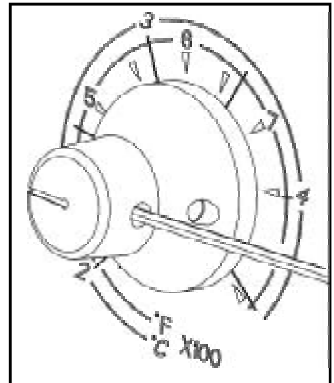
Adjust the Variable Temperature Control Knob to the desired temperature setting. Notice that the control dial has a White graphic scale denoting temperature in °C (Celsius) and a Yellow graphic scale denoting temperature in °F (Fahrenheit). These numerical scales denote the set tip temperature times 100 (e.g., “3” on the White scale is 3 x 100 or 300°C).



#### **Temperature/Dial Lock**

The Variable Temperature Control Knob can be locked in position to avoid accidental or unauthorized changes of the temperature setting. Perform the following procedure to lock the Variable Temperature Control Knob.

1. Adjust the Temp. Control Knob to the desired temperature setting.
2. Using the Temp. Locking Key (hex key supplied with system), tighten the set screw on the Temperature Control Knob closest to the front panel.



## Operation

---

### Tip Offset

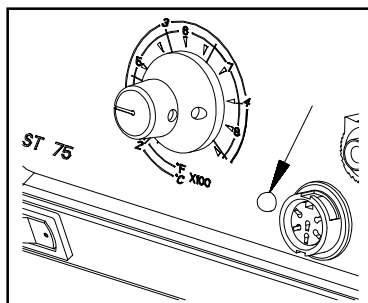
Differences between the temperature settings and true tip temperatures are negligible when using Thru-Hole, single point soldering tips. With any heating system however, True Tip Temperatures can differ greatly from temperature settings when using larger SMT soldering tips. This difference is called Tip Temperature Offset. PACE recommends the use of the Tip & Temperature Selection System booklet (PACE P/N 5050-0251) as a guide to accurately set and maintain a true tip temperature for any size and type of SMT tip.

---

### LED Operation

---

The Green colored LED on the power source front panel indicates System Status and Power Receptacle output status (LED OFF, ON or Flashing). Following is an explanation of these status indicators.



**LED Full On** - Continuous power is being delivered to the handpiece. This condition is evident when the system is first powered up (handpiece heater cold) or the Variable Temperature Control setting is increased.

**LED Flashing** - Indicates that the set tip temperature (as set on the Variable Temperature Control) has been reached. Power to the handpiece is cycling Off and On to maintain set temperature.

**LED Off** - No power is being delivered to the handpiece heater. This condition is evident for a short period of time when set temperature is reached and stabilizing or if the Variable Temperature Control setting is decreased. If the LED never illuminates, check for a faulty handpiece (see Corrective Maintenance section). Also, if no handpiece is connected to the power source, the LED will not illuminate.

### **Repair Procedure**

The "Repair" section of this manual provides the technician with the information necessary to determine the source of a malfunction and take the necessary steps to correct it. In order to perform the most expedient repair, the technician must follow the process listed below step by step, in order. Failure to do so will make the diagnosis and repair much more difficult.

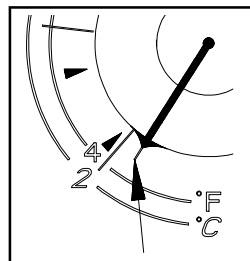
1. **Periodic Maintenance** - Required on any PACE handpiece used. Refer to the the "Handpiece Operation" portion of this manual for specific instructions. No periodic or special maintenance is required on the power source.
2. **Calibration** - The system can be easily checked to verify temperature accuracy. No internal adjustments can be made.
3. **Corrective Maintenance** - A guide for resolving minor malfunctions. Locate the "Symptom" in the Corrective Maintenance Table (Power Source or Heater Assembly Checkout table) which best describes the malfunction. Check each point described under "Solution" in order of listing.
4. **Disassembly/Assembly** - Contains simple instructions which enable the technician to open/close the unit for servicing.
5. **Repair Drawings** - Exploded power source, wiring diagram and schematic are included as aides in troubleshooting and repair.
6. **PACE Service Department** - If the cause for malfunction has not been determined at this point, call the PACE Service Department at 1-(888)535-PACE (toll free) or FAX (301)483-7030.

# Repair

## Calibration

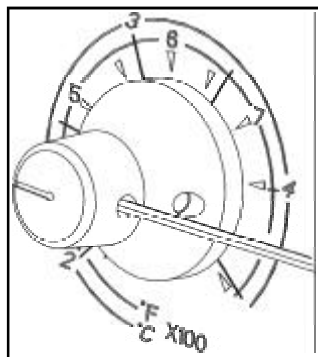
The ST 75 system is tested for temperature accuracy at the factory and can be checked for calibration according to PACE requirements. Also, a temperature setting normally used by the operator can be adjusted to the precise temperature indicated on the Dial/Display. No internal adjustments can be made to the power supply. To verify calibration of the power supply, perform the following procedure.

1. Install a tip with an attached thermocouple wire into the handpiece connected to the system. Tips with K type thermocouples are available from PACE; use part number 7021-0004-P1 when ordering.
2. Connect the thermocouple assembly to a PACE Process Monitor (part number 8001-0077 or 8001-0078) or appropriate temperature meter.
3. When set fully counterclockwise, the pointer of the Variable Temperature Control knob will align to the Calibration Mark as shown. With the system turned on, adjust the Variable Temperature Control to obtain a stable tip temperature of 300°C (for PACE factory specifications) or the temperature setting normally used by the operator.



If the temperature displayed on the Process Monitor (or temperature meter) is within  $\pm 15^{\circ}\text{C}$  ( $27^{\circ}\text{F}$ ), perform steps 4 thru 6 to obtain a precise reading. If the temperature is off by more than  $\pm 15^{\circ}\text{C}$ , the handpiece may require maintenance. Recheck the temperature using a second handpiece.

4. Carefully lock the Variable Temperature Control in position by tightening the inner set screw (closest to front panel).
5. Loosen the outer set screw on the Variable Temperature Control knob (furtherest from front panel) using the Temp. Locking Key (hex key) supplied with the system. Position the knob with the pointer aligned to match the temperature indicated on the Process Monitor (or temperature meter). Secure the knob in position by tightening the outer set screw.
6. Loosen the inner set screw (on Variable Temperature Control knob) to unlock the Variable Temperature control if adjustment of operating tip temperature is desired.



---

***Corrective Maintenance***

---

**Power Source**

Most malfunctions are simple and easy to correct. Refer to Table 1 below to clear these malfunctions.

Symptom	Probable Cause	Solution
No power to system.	Blown Fuse	Check handpiece using "Heater Assembly Checkout Procedures", Table 4. Replace fuse located in AC Receptacle/Fuse Holder.
Insufficient vacuum or air pressure. Motor Pump runs.	Handpiece air hose has a kink or hole in hose.	Check handpiece hose. Replace air hose if necessary
	VisiFilter or handpiece filter clogged.	Replace VisiFilter or handpiece filter.
	Handpiece chamber not seated properly in handpiece.	Check handpiece. Reseat chamber if necessary.
	Defective Motor Pump Assembly.	Check vacuum and air pressure at Motor Pump Assembly air hose connections. Replace Motor Pump Assembly if necessary.
No vacuum or air pressure. Motor Pump does not run.	Defective handpiece.	Check handpiece using "Heater Assembly Checkout Procedures", Table 4.
	Defective Motor Pump Assembly.	Check for 12 VDC at motor terminals with handpiece switch actuated. Replace Motor Pump Assembly if defective.
	Defective Main PCB Assembly	If there is no 12 VDC at Motor Pump Assembly, repair or replace Main PCB Assembly.
No heat on handpiece.	Defective Heater	Refer to "Heater Assembly Checkout Procedures", Table 4.

*Table 1. Power Source Corrective Maintenance*

Handpieces

The following “Heater Assembly Checkout Procedures” (Table 2) is applicable to all PACE SensaTemp handpieces used with the ST 75 system except for the TT-65 and DTP-80handpieces. Refer to the applicable manuals for troubleshooting procedures pertinent to that handpiece. Perform the procedures with the handpiece heater at room temperature. If the heater is warm, resistance readings will be different from those shown. Disconnect the handpiece from the power source. Use a meter to check resistance across the handpiece connector plug pins as outlined in the “Checkout Procedure” column.

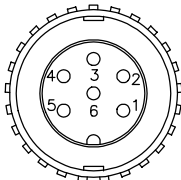
Symptom	Checkout Procedure	Cause	Solution
Handpiece does not heat.	Check resistance - Pin 2 to Pin 5. Refer to "Heater Specifications" column. If resistance is high - -	Open Heater	Replace Heater Assembly.
	Check resistance - Pin 3 to Pin 6. If circuit reads open - -	Open Sensor	Replace Heater Assembly.
Handpiece overheating.	Check resistance - Pin 3 to Pin 6. Resistance should be 110 ohms. If resistance is less than 105 ohms - -	Shorted Sensor	Replace Heater Assembly.
Fuse blows when unit is turned on.	Check resistance - Pin 2 to Pin 5. Refer to "Heater Specifications" column. If resistance is low - -	Shorted Heater	Replace Heater Assembly & Fuse.
No Ground on Tip.	Check resistance - Pin 4 to a NEW Tip. Resistance should be less than 2 ohms. If not - -	Oxidation in Heater Bore.	Clean Heater Bore using appropriate wire brush.
		Defective Heater	Replace Heater Assembly.
Heater Specifications			
<div><div><div>PS-80 = 8-10 ohms</div><div>SX-80 = 8-10 ohms</div><div>SX-70 = 8-10 ohms</div><div>TP-65 = 9-11 ohms</div><div>TJ-70 = 6-8 ohms</div></div><div></div><div>Connector Plug Pinouts</div></div>			

Table 2. Heater Assembly Checkout Procedures



### Disassembly/Assembly

To remove the ST 75 power source cover, perform the following procedure step by step, in sequence using the accompanying illustrations as a guide.

#### CAUTION

**POTENTIAL SHOCK HAZARD** - Disassembly of the ST 75 system power source exposes line voltage parts. Replacement of the Pump Assembly must be performed by qualified service personnel only. Service personnel must insure that the AC power cord is disconnected prior to disassembly. Contact the PACE Technical Support for assistance at tel. 1-888-535-PACE (7223), FAX 1-301-483-7030.

1. Place the unit on a suitable work surface with the front of the power source facing forward.
2. Disconnect the AC power cable from the unit (if present).

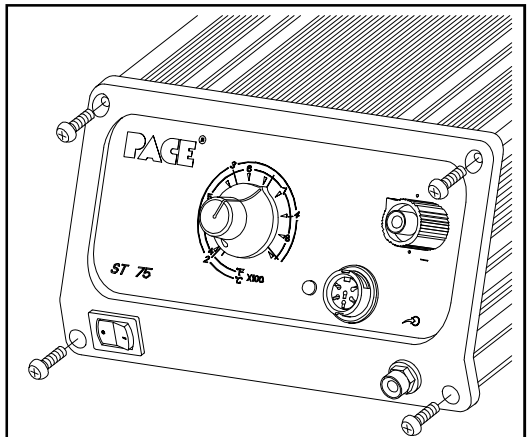
#### NOTE

Use all ESD control precautions when servicing the ST 75 system. The power source contains a PCB assembly utilizing static sensitive components.

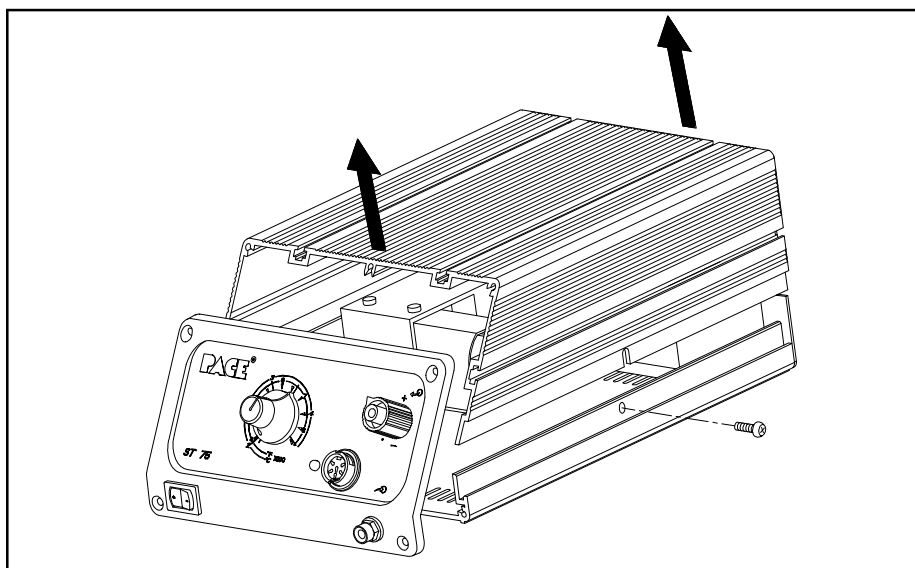
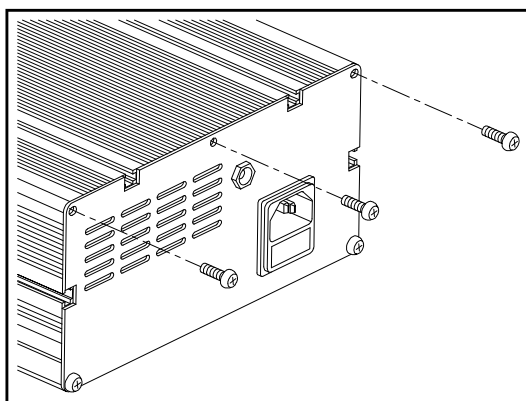
#### NOTE

At this point, you may wish to remove any accessories attached to the power source to ease removal of the 2 Cover Mounting Screws (step 6).

3. Remove the 4 Front Panel mounting screws located at each corner of the Front Panel Bezel.
4. Pull the Front Panel and Bezel forward.



5. Remove the 3 upper Rear Panel mounting screws.
6. Reposition the unit with the rear of the power source facing forward.
7. A Cover Mounting Screw is located on each side of the power source (positioned bottom center). Remove the 2 Cover Mounting Screws.
8. Lift the Cover from the power source. Set Cover aside.

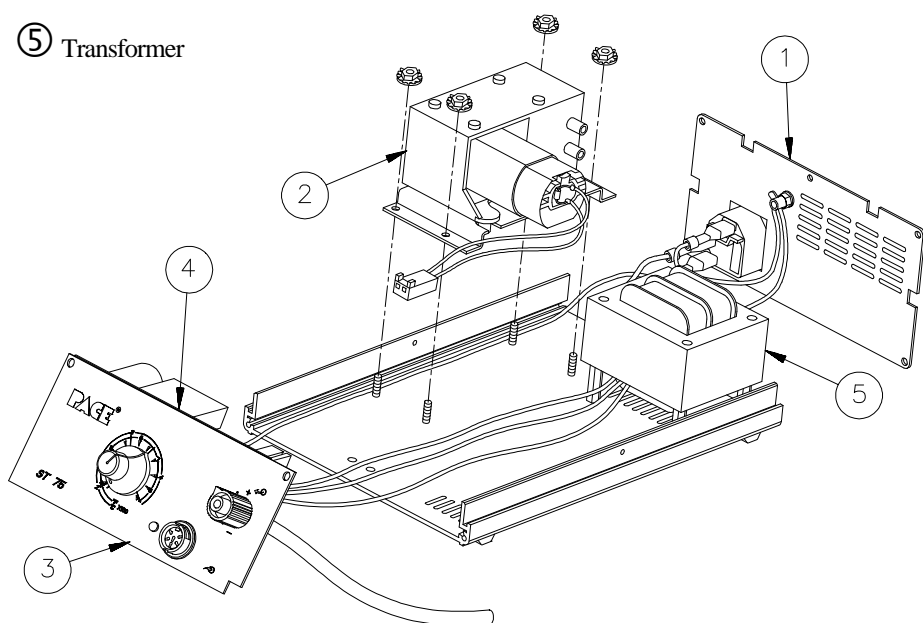


9. The power source components are now exposed for servicing. When replacing the Main PCB Assembly or the Motor Pump Assembly, separate instructions are supplied with the part.
10. To assemble the power source, perform steps 1 through 8 in reverse order, installing parts (e.g., screws) instead of removing.

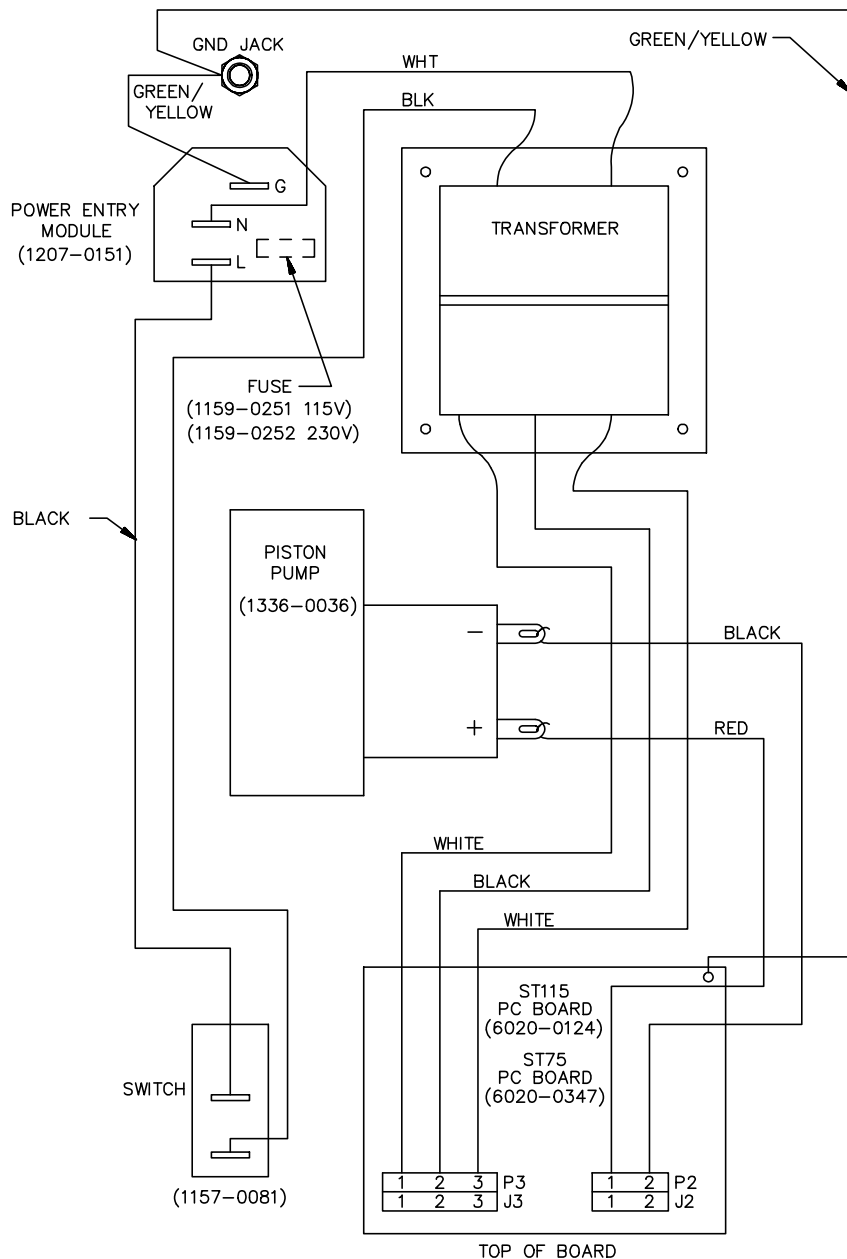
---

## **Assembly Detail**

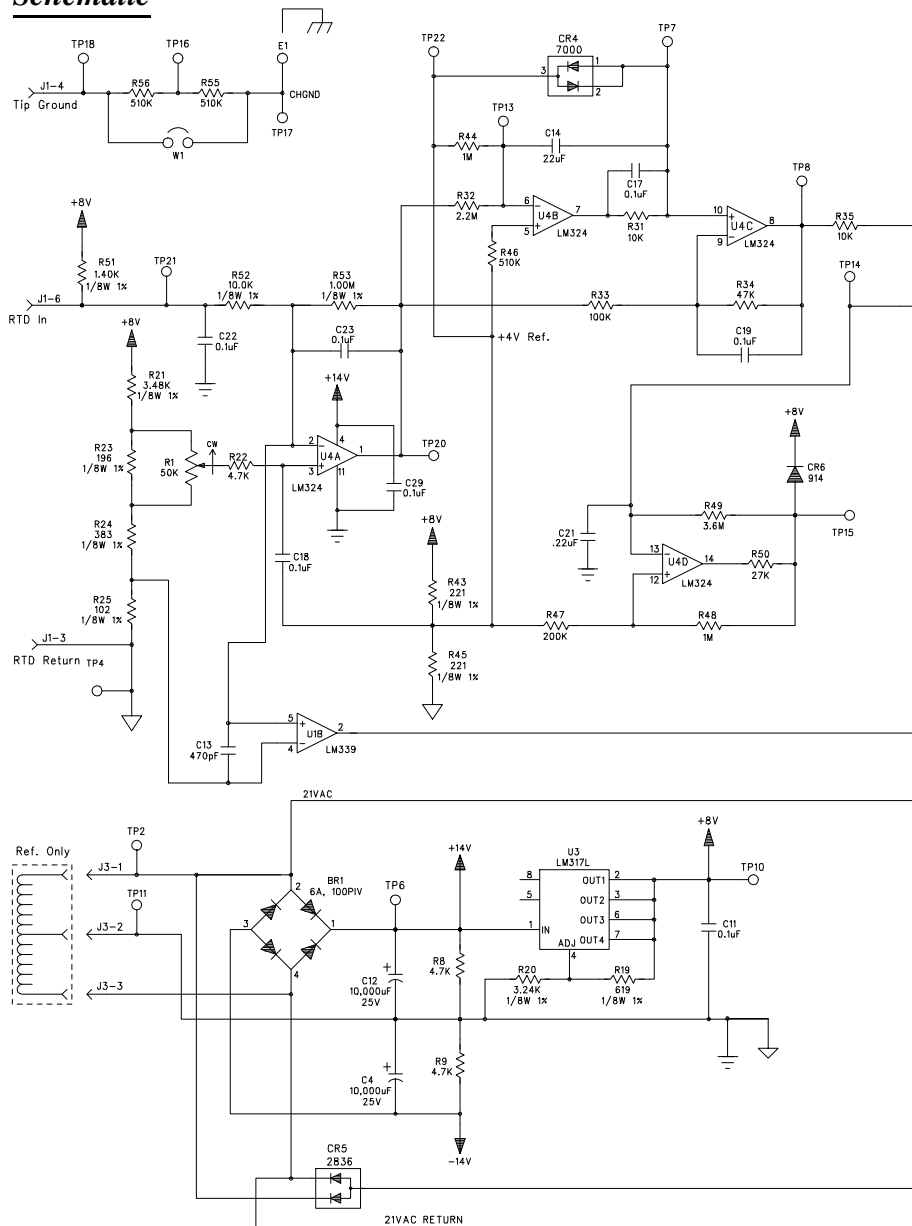
- ① Rear Panel
- ② Motor Pump Assembly
- ③ Front Panel
- ④ PCB Assembly
- ⑤ Transformer

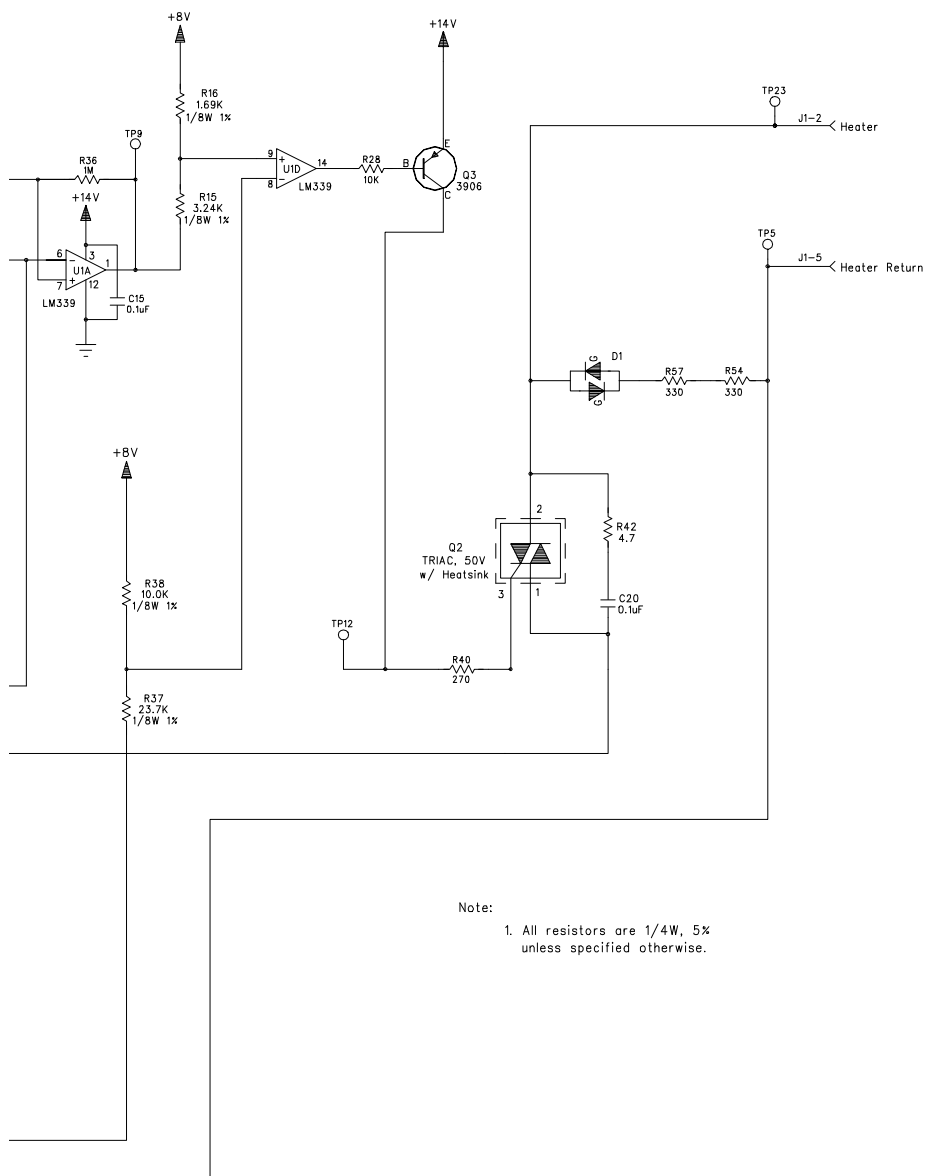


## Wiring Diagram



## Schematic

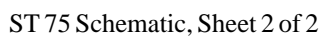




Note:

1. All resistors are 1/4W, 5% unless specified otherwise.

*Schematic Continued*



## Packing List

<b>PACKING LIST</b>			<b>Quantity Supplied</b>			
This is a packing list of the items shipped with the system and is current at the time of publication of this manual.			<b>ST 75 Systems</b>		<b>ST 75-SX80 Systems</b>	
<b>Item #</b>	<b>Description</b>	<b>Part Number</b>	<b>ST 75</b>	<b>ST 75E</b>	<b>ST 75</b>	<b>ST 75E</b>
1	ST 75 System Power Source	-----	1	1	1	1
2	SX-80 Handpiece, (48 Watts)	6010-0106	0	0	1	1
3	Power Supply Cord, 115 VAC	1332-0094	1	0	1	0
4	Power Supply Cord, 230 VAC	1332-0093	0	1	0	1
5	Tip & Tool Stand Kit	6019-0060-P1	0	0	1	1
6	SX-80 Accessory Kit	-----	0	0	1	1
7	Air Fitting Adaptor	1259-0081	0	1	0	1
8	Operation & Maintenance Manual	5050-0456	1	1	1	1
9	Tip Tool	1100-0206	0	0	1	1

Table 3. Packing List



## *Packing List/Spare Parts*

### *Spare Parts*

Item #	Description		Part Number
Power Source Replacement Parts			
1	Fuse,(F1),	1.25 Amp Time Lag, 115 Volt Systems	1159-0251
		0.63 Amp Time Lag, 230 Volt Systems	1159-0252
2	Power Cord	115 Volt Systems	1332-0094
		230 Volt Systems	1332-0093
3	Power Switch		1157-0081
4	Bumpon (rubber foot)		1274-0021
5	PCB Assembly		6020-0129-P1
6	Motor Pump Assembly		1336-0037-P1
Accessories & Spare Parts (partial list, complete listing in catalogue)			
7	Tip & Temperature Selection System Booklet		5050-0251
8	SX-80 Sodr-X-Tractor Handpiece		6010-0106-P1
9	SX-80 Heater Assembly		6010-0107-P1
10	PS-80 Soldering Iron Handpiece		6010-0096-P1
11	DTP-80 Dual ThermoPik Handpiece		7029-0001-P1
12	TT-65 ThermoTweez Handpiece		7025-0001-P1
13	TP-65 ThermoPik Handpiece		7024-0001-P1
14	TJ-70 ThermoJet Handpiece		7023-0002-P1

Table 4. Spare Parts

---

## LIMITED WARRANTY

PACE warrants that this equipment will be free of defects in materials and workmanship for a period of one (1) year from the date of receipt by the first user.

This warranty does not cover repair or replacement required as a result of misuse, mishandling or improper storage. Failure to perform recommended routine maintenance, alterations or repairs made other than in accordance with PACE's directions, or removal or alteration of identification plates in any way will void this warranty. This warranty is available only to the first user; but the exclusions and limitations therein apply to all persons and entities.

This warranty does not apply to consumable items, such as tips, filter elements, hoses, collection chambers etc., except that heaters are normally warranted for a period of six (6) months from the date of receipt by the first user.

PACE MAKES NO OTHER WARRANTY, EXPRESSED OR IMPLIED, AND MAKES NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

PACE will, at its option, repair or replace any defective equipment or parts at its facility or other location approved by it at no charge to the user; or provide parts without charge for installation by the user in the field at user's expense and risk. User will be responsible for all costs of shipping equipment to PACE or other warranty location for warranty service.

EXCEPT FOR THE REMEDY ABOVE DESCRIBED, UNLESS OTHERWISE REQUIRED BY APPLICABLE LAW, PACE WILL HAVE NO OTHER OBLIGATION WITH REGARD TO ANY BREACH OF WARRANTY OR OTHER CLAIM WITH RESPECT TO THE EQUIPMENT, OR LIABILITY FOR ANY DIRECT, INDIRECT, CONSEQUENTIAL, OR INCIDENTAL LOSS OR DAMAGE CAUSED BY OR OCCURRING IN CONNECTION WITH ANY OF THE EQUIPMENT.

To obtain warranty service, contact the appropriate PACE company listed below

PACE Inc. 9893 Brewers Court, Laurel, Maryland 20723-1990  
Tel. (888) 535-7223 (toll-free) Warranty Service FAX 301 483 7030

PACE Europe Ltd. Sherbourne House Sherbourne Drive Tilbrook Milton Keynes  
United Kingdom MK7 8HX  
Tel. (44) 01908 277 666 Warranty Service FAX (44) 01908 277 777

Do NOT return defective equipment or parts to PACE without obtaining prior authorization.

Any warranty or other claim with respect to the equipment must be made in writing and delivered to PACE (or local authorized PACE Distributor outside the U.S.) within a reasonable time of the expiration date of this warranty. Sufficient evidence of purchase and date of receipt must also be included, otherwise user's rights under this warranty shall be deemed waived.